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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/546,262      04/10/00      NGUYEN

K      2000-104

EXAMINER

IM22/0910

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TSANG, S

ART UNIT

PAPER NUMBER

1745

DATE MAILED:

09/10/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

**Office Action Summary**

Application No.

09/546,262

Applicant(s)

NGUYEN ET AL.

Examiner

Susy N Tsang

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 April 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Although the Examiner made a telephone requirement during a conversation with Robert Hammer on 7/24/2001, the restriction requirement is withdrawn after further consideration by the Examiner. Claims 1-11 are pending in this application.

### ***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, the limitation "said membrane being one layer of a multilayered separator" is indefinite because it is unclear whether the multilayered separator is the separator of the

Art Unit: 1745

preamble of either claim 1 or 2. For the purposes of prosecution, this limitation is interpreted as "said separator is a multilayered separator and said membrane being one layer of the multilayered separator."

In claim 9, the limitation "at least 15% of said blend" is indefinite because it is unclear what is basis of the percentage. For the purposes of prosecution, the limitation is interpreted as "at least 15% by weight of said blend."

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-8, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 603500 A1.

EP 603500 A1 discloses a battery separator (see Example 8, page 11) comprising a microporous polyolefinic membrane having a shut down temperature of 125 °C (see page 13, line 35), a porosity of 40% (see page 13, line 35), an average pore size in the range of 0.01 to 1 micron (see page 5, line 31), a thickness of 28 microns (see page 11, line 35), and being made from a blend comprising a ultra-high molecular weight polyethylene polymer having a molecular weight (viscosity average) of  $2.5 \times 10^6$  (and a melting point of 135 °C) and a polyethylene wax with an average molecular weight of 3,500 (page 10, lines 10-15), and the polyethylene wax is

Art Unit: 1745

37.5 % by weight of the blend (that is, the wax is 15 parts by weight and the high density polyethylene polymer is 25 parts by weight).

The separator can be used in a lithium battery wherein the separator is disposed between the positive and negative electrodes (page 3, lines 5-7) and a non-protonic electrolyte is filled or impregnated into the pores of the separator (page 6, lines 52-55).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-20659 A.

JP 8-20659 A discloses a battery separator comprising a blend of a base polymer and a low molecular weight material and the content of the low molecular weight material is commonly about 2 to 15 weight parts per 100 weight parts of the base polymer (paragraph 40).

The base polymer can be high density polyethylene (see paragraph 26) and the low molecular weight material can be polyethylene wax with a number average molecular weight of ideally about 1000 to 5000 (see paragraph 37). The mean pore width of the separator is preferably 0.01 to 0.03 microns (see paragraph 43), and the porosity is preferably about 30 to 60% (see paragraph 44).

JP 8-20659 A does not disclose that the wax is at least 15 % by weight of the blend.

Art Unit: 1745

JP 8-20659 A does teach that 15 weight parts of the wax per 100 weight parts of the base polymer can be used (paragraph 40). Calculations would show  $(15/(115) \times 100\%)$  that this is about 13% by weight of the wax in the blend.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use at least 15 % by weight of the wax in the blend because JP 8-20659 A teaches that a greater amount of wax would lower the melt start temperature and that the amount of wax is adjustable depending on the desired melt start temperature (see paragraph 40). Inherently, the blend comprising the at least 15% by weight of the wax would have a shutdown temperature of less than 130 °C.

Finally, claims that differ from the prior art only by slightly different (non-overlapping ) ranges are prima facie obvious without a showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 16 USPQ2d 1935,1937 (Fed. Cir. 1990.) See also *In re Huang*, 40 USPQ2d 1685 (Fed. Cir. 1996) (claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 603500 A1 in view of Lundquist et al. (US Pat .No. 4,650,730).

EP 603500 A1 discloses all the limitations of claim 5 except that the battery separator is a multilayered separator and the membrane is one layer of the multilayered separator.

Lundquist et al. teach a multilayered separator (see abstract and col. 10, lines 56-68).

Art Unit: 1745

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a battery separator be multilayered in order to provide dimensionally stability to the separator at elevated temperatures as taught by Lundquist et al. (col. line 60-65).

***Conclusion***

10. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, Ph.D. can be reached at (703) 308-0756. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/7 September 2001

  
**CAROL CHANEY**  
**PRIMARY EXAMINER**